



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2018-0510; Product Identifier 2017-NM-115-AD]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: We propose to supersede Airworthiness Directive (AD) 2016-04-16, which applies to all The Boeing Company Model DC-10-10, DC-10-10F, DC-10-15, DC-10-30, DC-10-30F (KC-10A and KDC-10), DC-10-40, DC-10-40F, MD-10-10F, MD-10-30F, MD-11, and MD-11F airplanes. AD 2016-04-16 requires adding design features to detect electrical faults and to detect a pump running in an empty fuel tank. Since we issued AD 2016-04-16, we have received new service information that would eliminate the need for certain provisions of AD 2016-04-16. This proposed AD would provide optional terminating action for certain requirements. We are proposing this AD to address the unsafe condition on these products.

DATES: We must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.

- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this NPRM, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminister Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; telephone: 562-797-1717; Internet: <https://www.myboeingfleet.com>. You may view this service information at the FAA, Transport Standards Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195. It is also available on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0510.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0510; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this NPRM, the regulatory evaluation, any comments received, and other information. The street address for Docket Operations (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Serj Harutunian, Aerospace Engineer, Propulsion Section, FAA, Los Angeles ACO Branch, 3960 Paramount Boulevard, Lakewood, CA 90712-4137; phone: 562-627-5254; fax: 562-627-5210; email: serj.harutunian@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2018-0510; Product Identifier 2017-NM-115-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this NPRM. We will consider all comments received by the closing date and may amend this NPRM because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

Discussion

We issued AD 2016-04-16, Amendment 39-18410 (81 FR 12806, March 11, 2016) (“AD 2016-04-16”), for all The Boeing Company Model DC-10-10, DC-10-10F, DC-10-15, DC-10-30, DC-10-30F (KC-10A and KDC-10), DC-10-40, DC-10-40F, MD-10-10F, MD-10-30F, MD-11, and MD-11F airplanes. AD 2016-04-16 requires adding design features to detect electrical faults and to detect a pump running in an empty fuel tank. AD 2016-04-16 resulted from a determination that it is necessary to clarify the requirements for the design features and to remove a terminating action for certain inspections. We issued AD 2016-04-16 to reduce the potential of ignition sources inside fuel tanks, which, in combination with flammable fuel vapors, could result in fuel tank explosions and consequent loss of the airplane.

Actions Since AD 2016-04-16 Was Issued

Since we issued AD 2016-04-16, we have received new service information that would eliminate the need for certain provisions of AD 2016-04-16.

Related Service Information under 1 CFR part 51

We reviewed the following Boeing service information.

- Boeing Alert Service Bulletin DC10–28A253, dated June 5, 2014; and Boeing Alert Service Bulletin MD11–28A133, dated June 5, 2014. This service information describes procedures for replacing the fuel pump control relays with fault current detectors and changing the fuel tank boost/transfer pump wire termination. These documents are distinct since they apply to different airplane models.
- Boeing Service Bulletin DC10–28–256, dated June 24, 2014; and Boeing Service Bulletin MD11–28–137, dated June 24, 2014. This service information describes procedures for changing the fuel pump control and indication system wiring. These documents are distinct since they apply to different airplane models.
- Boeing Trijet Special Compliance Item Report MDC–02K1003, Revision M, including Appendices A through D, dated July 25, 2014, which includes Critical Design Configuration Control Limitations (CDCCLs), Airworthiness Limitation Instructions (ALIs), and short-term extensions in Appendices B, C, and D, respectively. The service information describes fuel ALIs that address ignition sources.
- Boeing Service Bulletin DC10-28-264, dated May 15, 2015, or Boeing Service Bulletin MD11-28-146, dated May 15, 2015. This service information describes procedures for replacement of the fuel pump housing electrical connector, associated wires, fuel tank feed-through components, and installing sealed terminal lugs on the fuel pump wiring, or replacement of the fuel pump housing, associated wires, fuel tank feed-through components, and installing sealed terminal lugs on the fuel pump. These documents are distinct since they apply to different airplane models.

This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

FAA's Determination

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of these same type designs.

Proposed AD Requirements

This proposed AD would retain all requirements of AD 2016-04-16. Specifically, this proposed AD would retain the repetitive inspections for proper operation of the fuel pump, and applicable corrective actions.

This proposed AD would also eliminate the need for the provisions in paragraph (j) of this proposed AD by providing optional terminating action for the requirements of paragraph (a) of AD 2002-13-10, Amendment 39-12798 (67 FR 45053, July 8, 2002); paragraph (a) of AD 2003-07-14, Amendment 39-13110 (68 FR 17544, April 10, 2003); and paragraph (j) of AD 2011-11-05, Amendment 39-16704 (76 FR 31462, June 1, 2011).

This proposed AD specifies to revise certain operator maintenance documents to include new actions (e.g., inspections) and CDCCLs. Compliance with these actions and CDCCLs is required by 14 CFR 91.403(c). For airplanes that have been previously modified, altered, or repaired in the areas addressed by this proposed AD, the operator may not be able to accomplish the actions described in the revisions. In this situation, to comply with 14 CFR 91.403(c), the operator must request approval for an alternative method of compliance according to paragraph (l) of this proposed AD. The request should include a description of changes to the required actions and CDCCLs that will ensure the continued operational safety of the airplane. For information on the procedures

and compliance times, see this service information at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0510.

Costs of Compliance

We estimate that this proposed AD affects 341 airplanes of U.S. registry. We estimate the following costs to comply with this proposed AD:

Estimated costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Installing design features using a method approved by the FAA (retained actions from AD 2016-04-16)	152 work-hours X \$85 per hour = \$12,920	\$137,500	\$150,420	\$51,293,220
Installing design features using service information (retained actions from AD 2016-04-16)	98 work-hours X \$85 per hour = \$8,330	\$109,000	\$117,330	\$40,009,530
Inspection for proper operation (new proposed action)	Up to 130 work-hours X \$85 per hour = \$11,050 per inspection cycle	\$0	Up to \$11,050 per inspection cycle	

Estimated costs for optional terminating actions

Action	Labor cost	Parts cost	Cost per product
Option 1: Replace connectors for Model DC-10 and MD-10 (122 airplanes)	68 work-hours X \$85 per hour = \$5,780	\$54,842	\$60,622
Option 1: Replace connectors for Model MD-11 (124 airplanes)	59 work-hours X \$85 per hour = \$5,015	\$67,031	\$72,046
Option 2: Replace fuel pump housings for Model DC-10 and MD-10 (122 airplanes)	Up to 81 work-hours X \$85 per hour = \$6,885	Up to \$54,842	Up to \$61,727
Option 2: Replace fuel pump housings for Model MD-11 (124 airplanes)	Up to 77 work-hours X \$85 per hour = \$6,545	Up to \$67,031	Up to \$73,576

We have received no definitive data that would enable us to provide cost estimates for the on-condition actions specified in this proposed AD.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority

because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

This proposed AD is issued in accordance with authority delegated by the Executive Director, Aircraft Certification Service, as authorized by FAA Order 8000.51C. In accordance with that order, issuance of ADs is normally a function of the Compliance and Airworthiness Division, but during this transition period, the Executive Director has delegated the authority to issue ADs applicable to transport category airplanes and associated appliances to the Director of the System Oversight Division.

Regulatory Findings

We have determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that the proposed regulation:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by removing Airworthiness Directive (AD) 2016-04-16, Amendment 39-18410 (81 FR 12806, March 11, 2016), and adding the following new AD:

The Boeing Company: Docket No. FAA-2018-0510; Product Identifier 2017-NM-115-AD.

(a) Comments Due Date

The FAA must receive comments on this AD action by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

(1) This AD replaces AD 2016-04-16, Amendment 39-18410 (81 FR 12806, March 11, 2016) (“AD 2016-04-16”).

(2) This AD affects AD 2002–13–10, Amendment 39–12798 (67 FR 45053, July 8, 2002) (“AD 2002-13-10”).

(3) This AD affects AD 2003-07-14, Amendment 39-13110 (68 FR 17544, April 10, 2003) (“AD 2003-07-14”).

(4) This AD affects AD 2008-06-21 R1, Amendment 39-16100 (74 FR 61504, November 25, 2009) (“AD 2008-06-21 R1”).

(5) This AD affects AD 2011-11-05, Amendment 39-16704 (76 FR 31462, June 1, 2011) (“AD 2011-11-05”).

(c) Applicability

This AD applies to all The Boeing Company airplanes identified in paragraphs (c)(1) and (c)(2) of this AD, certificated in any category.

(1) Model DC-10-10, DC-10-10F, DC-10-15, DC-10-30, DC-10-30F (KC-10A and KDC-10), DC-10-40, and DC-10-40F airplanes.

(2) Model MD-10-10F, MD-10-30F, MD-11, and MD-11F airplanes.

(d) Subject

Air Transport Association (ATA) of America Code 28, Fuel.

(e) Unsafe Condition

This AD was prompted by a fuel system review conducted by the manufacturer. We are issuing this AD to reduce the potential of ignition sources inside fuel tanks, which, in combination with flammable fuel vapors, could result in fuel tank explosions and consequent loss of the airplane.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Restatement of Paragraph (g) of AD 2016-04-16, With No Changes

This paragraph restates the requirements of paragraph (g) of AD 2016-04-16, with no changes. Except as provided by paragraph (h) of this AD: As of 48 months after April 15, 2016 (the effective date of AD 2016-04-16), no person may operate any airplane affected by this AD unless an amended type certificate or supplemental type certificate that incorporates the design features and requirements described in paragraphs (g)(1) through (g)(4) of this AD has been approved by the Manager, Los Angeles ACO Branch, FAA, and those design features are installed on the airplane to meet the criteria specified in section 25.981(a) and (d) of the Federal Aviation Regulations (14 CFR 25.981(a) and (d), at Amendment 25-125 (http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgFAR.nsf/0/339DAEE3E0A6379D862574CF00641951?OpenDocument)). For airplanes on which Boeing-installed auxiliary fuel tanks are removed, the actions specified in this AD for the auxiliary fuel tanks are not required.

(1) For all airplanes: Each electrically powered alternating current (AC) fuel pump installed in any fuel tank that normally empties during flight and each pump that is partially covered by a lowering fuel level—such as main tanks, center wing tanks, auxiliary fuel tanks installed by the airplane manufacturer, and tail tanks—must have a protective device installed to detect electrical faults that can cause arcing and burn through of the fuel pump housing and pump electrical connector. The same device must shut off the pump by automatically removing electrical power from the pump when such faults are detected. When a fuel pump is shut off resulting from detection of an electrical fault, the device must stay latched off, until the fault is cleared through maintenance action and the pump is verified safe for operation.

(2) For airplanes with a 2-person flightcrew: Additional design features, if not originally installed by the airplane manufacturer, must be installed to meet 3 criteria: To detect a running fuel pump in a tank that is normally emptied during flight, to provide an indication to the flightcrew that the tank is empty, and to automatically shut off that fuel pump. The prospective pump indication and shutoff system must automatically shut off each pump in case the flightcrew does not shut off a pump running dry in an empty tank within 60 seconds after each fuel tank is emptied. An airplane flight manual supplement (AFMS) that includes flightcrew manual pump shutoff procedures in the Limitations section of the AFMS must be submitted to the Los Angeles ACO Branch, FAA, for approval.

(3) For airplanes with a 3-person flightcrew: Additional design features, if not originally installed by the airplane manufacturer, must be installed to detect when a fuel pump in a tank that is normally emptied during flight is running in an empty fuel tank, and to provide an indication to the flightcrew that the tank is empty. The flight engineer must manually shut off each pump running dry in an empty tank within 60 seconds after

the tank is emptied. The AFMS Limitations section must be revised to specify that this pump shutoff must be done by the flight engineer.

(4) For all airplanes with tanks that normally empty during flight: Separate means must be provided to detect and shut off a pump that was previously commanded to be shut off automatically or manually but remained running in an empty tank during flight.

(h) Restatement of Paragraph (h) of AD 2016-04-16, With No Changes

This paragraph restates the provisions of paragraph (h) of AD 2016-04-16, with no changes. In lieu of doing the requirements of paragraph (g) of this AD, do the applicable actions specified in paragraphs (h)(1), (h)(2), and (h)(3) of this AD.

(1) For MD-11 and MD-11F airplanes: Do the actions specified in paragraphs (h)(1)(i) and (h)(1)(ii) of this AD.

(i) As of 48 months after April 15, 2016 (the effective date of AD 2016-04-16), change the fuel pump control and indication system wiring, in accordance with the Accomplishment Instructions of Boeing Service Bulletin MD11-28-137, dated June 24, 2014.

(ii) Prior to or concurrently with accomplishing the actions specified in paragraph (h)(1)(i) of this AD: Replace the fuel pump control relays with fault current detectors, and change the fuel tank boost/transfer pump wire termination, in accordance with Accomplishment Instructions of Boeing Alert Service Bulletin MD11-28A133, dated June 5, 2014.

(2) For Model DC-10-10, DC-10-10F, DC-10-15, DC-10-30, DC-10-30F (KC-10A and KDC-10), DC-10-40, DC-10-40F, MD-10-10F, and MD-10-30F airplanes: Do the actions specified in paragraphs (h)(2)(i) and (h)(2)(ii) of this AD.

(i) As of 48 months after April 15, 2016 (the effective date of AD 2016-04-16), change the fuel pump control and indication system wiring, in accordance with the

Accomplishment Instructions of Boeing Service Bulletin DC10-28-256, dated June 24, 2014.

(ii) Prior to or concurrently with accomplishing the actions specified in paragraph (h)(2)(i) of this AD: Replace the fuel pump control relays with fault current detectors, and change the fuel tank boost/transfer pump wire termination, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin DC10-28A253, dated June 5, 2014.

(3) For all airplanes: Within 30 days after accomplishing the actions required by paragraph (h)(1) or (h)(2) of this AD, or within 30 days after April 15, 2016 (the effective date of AD 2016-04-16), whichever occurs later, revise the maintenance or inspection program, as applicable, to incorporate the Critical Design Configuration Control Limitations (CDCCLs), Airworthiness Limitation Instructions (ALIs), and short-term extensions specified in Appendices B, C, and D of Boeing Trijet Special Compliance Item (SCI) Report MDC-02K1003, Revision M, dated July 25, 2014. The initial compliance time for accomplishing the actions specified in the ALIs is at the later of the times specified in paragraphs (h)(3)(i) and (h)(3)(ii) of this AD. Revising the maintenance or inspection program required by this paragraph terminates the requirements in paragraphs (g) and (h) of AD 2008-06-21 R1.

(i) At the applicable time specified in Appendix C of Boeing Trijet SCI Report MDC-02K1003, Revision M, dated July 25, 2014, except as provided by Appendix D of Boeing Trijet SCI Report MDC-02K1003, Revision M, dated July 25, 2014.

(ii) Within 30 days after accomplishing the actions required by paragraph (h)(1) or (h)(2) of this AD, as applicable; or within 30 days after April 15, 2016 (the effective date of AD 2016-04-16); whichever occurs later.

(i) Restatement of Paragraph (i) of AD 2016-04-16, With No Changes

This paragraph restates the requirements of paragraph (i) of AD 2016-04-16, with no changes. If the option in paragraph (h)(3) of this AD is accomplished: After the maintenance or inspection program has been revised as provided by paragraph (h)(3) of this AD, no alternative actions (e.g., inspections), intervals, or CDCCLs may be used unless the actions, intervals, or CDCCLs are approved as an alternative method of compliance (AMOC) in accordance with the procedures specified in paragraph (l) of this AD.

(j) Restatement of Paragraph (j) of AD 2016-04-16, With Additional AD Reference and Clarification of Provisions

This paragraph restates the provisions of paragraph (j) of AD 2016-04-16, with an additional AD reference and clarification of the provisions. Accomplishment of the actions specified in paragraphs (h)(1), (h)(2), and (h)(3) of this AD, as applicable, extends the 18-month interval for the repetitive inspections and tests required by paragraph (a) of AD 2002-13-10; the 18-month interval for the repetitive inspections required by paragraph (a) of AD 2003-07-14; and the 18-month interval for the repetitive inspections required by paragraph (j) of AD 2011-11-05; to 24-month intervals for pumps affected by those ADs, regardless if the pump is installed in a tank that normally empties, provided the remaining actions required by those three ADs have been accomplished.

(k) New Provision of this AD: Optional Terminating Action

Replacing the electrical connectors or fuel pump housing in accordance with the Accomplishment Instructions of Boeing Service Bulletin DC10-28-264, dated May 15, 2015; or Boeing Service Bulletin MD11-28-146, dated May 15, 2015, as applicable; terminates the repetitive inspections and tests required by paragraph (a) of AD 2002-13-10, paragraph (a) of AD 2003-07-14, and paragraph (j) of AD 2011-11-05.

(l) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Los Angeles ACO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (m)(1) of this AD. Information may be emailed to:

9-ANM-LAACO-AMOC-Requests@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(3) An AMOC that provides an acceptable level of safety may be used for any repair, modification, or alteration required by this AD if it is approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) that has been authorized by the Manager, Los Angeles ACO Branch, to make those findings. To be approved, the repair method, modification deviation, or alteration deviation must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

(4) For service information that contains steps that are labeled as Required for Compliance (RC), the provisions of paragraphs (l)(4)(i) and (l)(4)(ii) of this AD apply.

(i) The steps labeled as RC, including substeps under an RC step and any figures identified in an RC step, must be done to comply with the AD. If a step or substep is labeled “RC Exempt,” then the RC requirement is removed from that step or substep. An AMOC is required for any deviations to RC steps, including substeps and identified figures.

(ii) Steps not labeled as RC may be deviated from using accepted methods in accordance with the operator’s maintenance or inspection program without obtaining

approval of an AMOC, provided the RC steps, including substeps and identified figures, can still be done as specified, and the airplane can be put back in an airworthy condition.

(m) Related Information

(1) For more information about this AD, contact Serj Harutunian, Aerospace Engineer, Propulsion Section, FAA, Los Angeles ACO Branch, 3960 Paramount Boulevard, Lakewood, CA 90712-4137; phone: 562-627-5254; fax: 562-627-5210; email: serj.harutunian@faa.gov.

(2) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminister Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; telephone: 562-797-1717; Internet: <https://www.myboeingfleet.com>. You may view this referenced service information at the FAA, Transport Standards Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195.

Issued in Des Moines, Washington, on June 6, 2018.

Michael Kaszycki,
Acting Director,
System Oversight Division,
Aircraft Certification Service.

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